



COPPER ELECTROLYTIC SOLUTION AND  
ELECTROLYTIC COPPER FOIL PRODUCED THEREWITH

## ABSTRACT

~~It is an object of the~~The present invention ~~to~~  
~~provide~~provides a copper electrolytic solution used to  
obtain a low-profile electrolytic copper foil with a low  
surface roughness on the rough side (the opposite side from  
the glossy side) in the production of an electrolytic  
copper foil using a cathode drum, and, more particularly,  
to provide a copper electrolytic solution used to obtain an  
electrolytic copper foil that has excellent transmission  
loss characteristics at a high frequency, can be finely  
patterned, and has excellent elongation and tensile  
strength, both at ordinary ~~temperature~~ and high  
~~temperature~~temperatures. The copper electrolytic solution  
of the present invention contains ~~as additives~~ (A) at least  
one quaternary amine salt selected from the group  
consisting of (a) quaternary amine salts obtained by a  
reaction between epichlorohydrin and an amine compound  
mixture composed of a secondary amine compound and a  
tertiary amine compound, and (b) polyepichlorohydrin  
quaternary amine salts, and (B) an organic sulfur compound.